

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of Claims:

1-27. Canceled

28. (Withdrawn, currently amended) The isolated or recombinant polypeptide according to claim 25 76, wherein the ligand binding region comprises at least a part of the linker domain and all of the hormone binding domain of said EcR polypeptide or partner protein (USP polypeptide).
29. (Withdrawn, currently amended) The isolated or recombinant polypeptide according to claim 25 76, wherein the ligand binding region is the ligand binding region of the *M. persicae* ecdysteroid receptor EcR polypeptide of SEQ ID NO:14.
30. (Withdrawn, currently amended) The isolated or recombinant polypeptide according to claim 25 76, wherein the ligand binding region is the ligand binding region of a *B. tabacai* ecdysteroid receptor EcR polypeptide comprising the amino acid sequence of SEQ ID NO: 42 or encoded by nucleic acid that hybridizes under at least moderate stringency conditions to the complement of SEQ ID NO:41.
31. (Withdrawn, currently amended) The isolated or recombinant polypeptide according to claim 25 76, wherein the ligand binding region is the ligand binding region of the *L. cuprina* ecdysteroid receptor partner protein (USP polypeptide) comprising an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:6, and SEQ ID NO:8.

32-42. Canceled.

43. (Withdrawn) The cell according to claim 42 wherein the insect is *Spodoptera frugiperda* or the mammalian cell is a CHO cell.
44. (Withdrawn, currently amended) A cell that expresses the isolated or recombinant polypeptide according to claim 25 76.
45. (Withdrawn) The cell according to claim 44, being an insect cell or a mammalian cell.
46. (Withdrawn) The cell according to claim 45 wherein the insect cell is derived from *Spodoptera frugiperda* or the mammalian cell is a CHO cell.
47. (Withdrawn, currently amended) The method of identifying a modulator of steroid receptor-mediated gene expression or juvenile hormone receptor-mediated gene expression comprising:
- (i) assaying the expression of a reporter gene in the presence of the recombinant or isolated polypeptide according to ~~any one of claims claim 25 or 35 to 39~~ 76, and a potential modulator;
  - (ii) assaying the expression of the reporter gene in the presence of the recombinant or isolated polypeptide according to ~~any one of claims claim 25 or 35 to 39~~ 76, and without said potential modulator; and
  - (iii) comparing expression of the reporter gene at (i) and (ii),

wherein expression of said reporter gene is effected by the binding of said polypeptide to a steroid response element (SRE) or a promoter sequence comprising said SRE, and wherein a different level of expression at (iii) indicates that said potential modulator is a modulator of steroid receptor-mediated gene expression.

48. (Withdrawn) The method according to claim 47, wherein the SRE is the hsp27 ecodyson response element or the 13 bp core palindrome thereof.
49. (Withdrawn) The method according to claim 47, wherein the promoter is the SV40 promoter, MMTV promoter, p10 promoter or polyhedron promoter.
50. (Withdrawn) The method according to claim 47 wherein the reporter gene is the CAT gene or the  $\beta$ -galactosidase gene.
51. (Withdrawn) The method of claim 47 wherein the modulator of steroid receptor-mediated gene expression or juvenile hormone receptor-mediated gene expression is a steroid receptor antagonist or juvenile hormone receptor antagonist.
52. (Withdrawn) The method of claim 47 wherein the modulator of steroid receptor-mediated gene expression or juvenile hormone receptor-mediated gene expression is a steroid receptor agonist or juvenile hormone receptor agonist.
53. (Withdrawn) The method of claim 47, wherein the modulator is an agonist or antagonist and wherein said modulator is a synthetic chemical that mimics the structure of a ligand of said receptor, thereby modulating binding of said ligand to said receptor.

54. (Withdrawn) The method of claim 53, wherein the synthetic chemical is a bisacylhydrazine insecticide, iridoid glycoside or other non-steroidal modulator of an ecdysteroid receptor or juvenile hormone receptor.
55. (Withdrawn, currently amended) A method of identifying a potential insecticidal compound comprising:
- (i) assaying the binding directly or indirectly of the recombinant or isolated polypeptide according to claim ~~25~~ 76 to a steroid response element (SRE) to which said polypeptide binds, in the presence of a candidate compound;
  - (ii) assaying the binding directly or indirectly of the recombinant or isolated polypeptide according to claim ~~25~~ 76 to a steroid response element (SRE) to which said polypeptide binds, in the absence of said candidate compound; and
  - (iii) comparing the binding assayed at (i) and (ii), wherein a difference in the level of binding indicates that the candidate compound possesses potential insecticidal activity.
56. (Withdrawn) The method according to claim 55, wherein the binding is assayed indirectly by determining the level of expression of a reporter gene which is placed operably under the control of the steroid response element (SRE) to which the isolated or recombinant polypeptide binds or a promoter sequence comprising said SRE.
57. (Withdrawn) The method according to claim 56, wherein the SRE is the hsp27 ecdysone response element or the 13 bp core palindrome thereof.

58. (Withdrawn) The method according to claim 56, wherein the promoter is the SV40 promoter, MMTV promoter, p10 promoter or polyhedron promoter.
59. (Withdrawn) The method according to claim 56, wherein the reporter gene is the CAT gene or the  $\beta$ -galactosidase gene.
60. (Withdrawn) The method according to claim 55, wherein the potential insecticidal compound is an insect steroid receptor antagonist or insect juvenile hormone receptor antagonist.
61. The method according to claim 55, wherein the potential insecticidal compound (Withdrawn) is an insect steroid receptor agonist or insect juvenile hormone receptor agonist.
62. (Withdrawn) The method of claim 60 or 61, wherein the agonist or antagonist is a synthetic chemical that mimics the structure of a ligand of an insect steroid receptor or a juvenile hormone receptor, thereby modulating binding of said ligand to said receptor.
63. (Withdrawn) The method of claim 62, wherein the synthetic chemical is a bisacylhydrazine insecticide, iridoid glycoside or other non-steroidal modulator of an insect ecdysteroid receptor or insect juvenile hormone receptor.
64. (Withdrawn, currently amended) A method of identifying a candidate insecticidally-active agent comprising:
- (i) expressing the recombinant or isolated polypeptide of claim ~~25~~ 76, wherein said polypeptide is an EcR polypeptide or a ligand binding region

comprising at least the hormone binding domain and a part of the linker region of said EcR polypeptide, optionally in association with the partner protein (USP polypeptide) of an insect ecdysteroid receptor or the ligand-binding region thereof so as to form a functional hormone-binding complex;

- (ii) purifying or precipitating the EcR polypeptide or ligand binding region or hormone binding complex;
  - (iii) determining the three-dimensional structure of the ligand binding domain of the polypeptide or complex; and
  - (iv) identifying a compound that binds to or associates with the three-dimensional structure of the ligand binding region, wherein said compound represents a candidate insecticidally-active agent.
65. (Withdrawn) The method of claim 64, wherein the candidate insecticidally-active agent is a synthetic chemical that mimics the structure of a ligand of an insect steroid receptor or a juvenile hormone receptor, thereby modulating binding of said ligand to said receptor.
66. (Withdrawn) The method of claim 65, wherein the synthetic chemical is a bisacylhydrazine insecticide, iridoid glycoside or other non-steroidal modulator of an insect ecdysteroid receptor or insect juvenile hormone receptor.
67. (Withdrawn, currently amended) A method of identifying a candidate insecticidally-active agent comprising:
- (i) expressing the recombinant or isolated polypeptide of claim ~~25~~ 76, ~~wherein said polypeptide is a partner protein (USP polypeptide) or a~~

~~ligand-binding region comprising at least the hormone binding domain and a part of the linker region of said partner protein (USP polypeptide), optionally in association with the EcR polypeptide of an insect ecdysteroid receptor or the ligand-binding region thereof so as to form a functional hormone-binding complex;~~

- (ii) ~~purifying or precipitating the partner protein (USP polypeptide) or ligand binding region or hormone binding complex;~~
  - (iii) ~~determining the three-dimensional structure of the ligand binding domain of the polypeptide or complex; and~~
  - (iv) ~~identifying a compound that binds to or associates with the three dimensional structure of the ligand binding region, wherein the said compound represents a candidate insecticidally-active agent.~~
68. (Withdrawn) The method of claim 67, wherein the candidate insecticidally-active agent is a synthetic chemical that mimics the structure of a ligand of an insect steroid receptor or an insect juvenile hormone receptor, thereby modulating binding of said ligand to said receptor.
69. (Withdrawn) The method of claim 68, wherein the synthetic chemical is a bisacylhydrazine insecticide, iridoid glycoside or other non-steroidal modulator of an insect ecdysteroid receptor or insect juvenile hormone receptor.
70. (Withdrawn, currently amended) A synthetic compound that interacts with the three dimensional structure of the isolated or recombinant polypeptide according to claim ~~25~~ 76, wherein said compound is capable of binding to said polypeptide or protein to agonize or antagonize the binding activity or bioactivity thereof.

71. (Withdrawn, currently amended) A method of identifying a synthetic compound having insecticidal activity comprising contacting the recombinant or isolated polypeptide according to claim ~~25~~ 76, with said compound for a time and under conditions sufficient for binding to occur and detecting said binding using a detection means, wherein the occurrence of binding is indicative of potential insecticidal activity of the compound.
72. (Withdrawn, currently amended) A hormone-binding complex that binds an insect ecdysteroid or binds a synthetic chemical that mimics the structure of said ecdysteroid, wherein said hormone-binding complex comprises:
- (i) the ligand-binding region of an ecdysteroid receptor partner protein (USP polypeptide) according to claim ~~25~~ 76; and
  - (ii) the EcR polypeptide of an insect ecdysteroid receptor or the ligand binding region thereof.
73. (Withdrawn, currently amended) A hormone-binding complex that binds an insect ecdysteroid or binds a synthetic chemical that mimics the structure of said ecdysteroid, wherein said hormone-binding complex comprises:
- (i) the ligand-binding region of an EcR polypeptide according to claim ~~25~~ 76; and
  - (ii) the ecdysteroid receptor partner protein (USP polypeptide) of an insect ecdysteroid receptor or the ligand binding region thereof.



74. (Withdrawn, currently amended) A hormone-binding complex that binds an insect ecdysteroid or binds a synthetic chemical that mimics the structure of said ecdysteroid, wherein said complex comprises:

- (i) the ligand binding region of an EcR polypeptide according to claim ~~25~~ 76;  
and
- (ii) the ligand binding region of an ecdysteroid receptor partner protein (USP polypeptide) according to claim ~~25~~ 76.

75. (New) A recombinant or isolated polypeptide comprising an amino acid sequence selected from the group consisting of:

an insect ecdysteroid receptor partner protein (USP polypeptide) having at least 80% identity to the *B. tabacai* ecdysteroid receptor partner protein (USP polypeptide) set forth in SEQ ID NO:40, wherein the USP polypeptide binds an ecdysteroid receptor protein;

an insect ecdysteroid receptor partner protein (USP polypeptide) having at least about 80% identity to the *B. tabacai* ecdysteroid receptor partner protein (USP polypeptide) sequence encoded by the DNA of *B. tabacai* contained in the plasmid deposited under AGAL Accession No. NM00/12580, wherein said USP polypeptide binds and ecdysteroid receptor protein;

a *B. tabacai* ecdysteroid receptor partner protein (USP polypeptide) encoded by nucleic acid that is capable of hybridizing under at least moderate stringency conditions to the DNA of *B. tabacai* contained in the plasmid deposited under AGAL Accession No. NM00/12580, wherein the USP polypeptide binds to an ecdysteroid receptor protein; and

an ecdysteroid receptor partner protein (USP polypeptide) comprising  
SEQ ID NO:40.

76. (New) An isolated or recombinant polypeptide comprising SEQ ID NO:40.